REMARKS

Applicant respectfully requests reconsideration.

Claims 178-181 were previously pending in this application.

Claims 178 and 179 are amended.

Claims 178-181 are pending for examination with claims 178 and 179 being independent claims. No new matter has been added.

Priority

The Examiner stated the claims will be afforded the filing date of the priority application 60/064687 filed November 5, 1997, and not that of the priority application 60/037921 filed February 12, 1997. Applicant notes that the prior art rejections are based on art published in 1992 and 1995, more than a year before either priority date, and thus the determination of priority for these claims has no bearing on the current prior art rejections.

Double Patenting Rejection

The Examiner rejected claims 178-181 as unpatentable over claims 1, 19, 29, 51-52, 54, 59-60, 80, 106-107 and 120-123 of U.S. Patent No. 6,355,420.

Without conceding the Examiner's position and rather in the interest of expediting prosecution, Applicant submits herewith a Terminal Disclaimer over US 6355420, and a Statement under 37 CFR 3.73(b) evidencing ownership of the instant application.

Reconsideration and withdrawal of this rejection is respectfully requested.

Rejection under 35 U.S.C. §112, first paragraph, enablement

Claims 178-181 are rejected under 35 U.S.C. §112, first paragraph, lack of enablement. The Examiner has indicated that she has construed the breadth of the claims differently in the prior art and enablement rejections. Importantly, the Examiner has clearly stated that, with respect to the enablement rejection, she has construed the claims as reading on identification of the sequence of a nucleic acid and, in doing so, has imported limitations into the claims that are not otherwise recited.

The Examiner should be basing her enablement rejection on the explicit terms and limitations of the claims, rather than on other terms and limitations that are not recited in the claims. The Examiner argues that the basis for doing so, with respect to claim 178, is the recitation of "analyzing a nucleic acid" in the preamble. (Applicant notes that the Examiner offers no basis or rationale for her particular construction of claim 179.) The preamble is to be referred to "when it breathes life and meaning into a claim". (See Pitney Bowes, Inc. v. Hewlett Packard Co., 182 F.3d 1298, 51 USPQ2d 1161 (Fed. Cir. 1990) ("... there is no meaningful distinction to be drawn between the claim preamble and the rest of the claim, for only together do they comprise the 'claim'. If, however, the body of the claim fully and intrinsically sets forth the complete invention, including all of its limitations, and the preamble offers no distinct definition of any of the claimed invention's limitations, but rather merely states, for example, the purpose or intended use of the invention, then the preamble is of no significance to claim construction because it cannot be said to constitute or explain a claim limitation.") The preamble of claim 178 "merely states the purpose" of the claimed method. The body of claim 178 clearly sets forth that method, and therefore no reference to the preamble is required.

Accordingly, Applicant disagrees with the Examiner's construction of "analyzing a nucleic acid" and claim 178 as a whole. In an effort to expedite prosecution, Applicant has amended claim 178 to remove the recitation of "analyzing a nucleic acid" from the claim, such that it now reads in part "A method comprising ...". The amended claim recites particular steps of providing a nucleic acid that is labeled with a unit specific marker (that is itself labeled with a fluorophore, contrary to another of the Examiner's statements), detecting signal from the unit specific marker bound to the nucleic acid by exposing the marker to radiation, and storing a signature of signals."

Claim 179 has also been amended to recite in the preamble that it is "A method for detecting a unit specific marker bound to a nucleic acid". The amended claim recites moving a nucleic acid past radiation using a polymerase, exposing a labeled unit specific marker to the radiation, and detecting signal from the marker. The claim has been further amended to recite that the unit specific marker is fluorescently labeled.

Both claims recite unit specific markers that are bound to a nucleic acid. Such unit specific markers may be specific for one or more nucleotides. As an example, the unit specific marker may

comprise a single nucleotide or it may comprise more than one nucleotide. Since both claims recite that the unit specific marker is fluorescently labeled, the unit specific marker will also comprise a fluorescent molecule such as a fluorophore. One of ordinary skill in the art will readily appreciate that multiple fluorophores may be used per unit specific marker in order to amplify signal from the marker. This is within the skill of the ordinary artisan. Moreover, fluorescently labeled single nucleotides have been generated and detected in the prior art. (See for example US 5405747, filed in 1994.) Accordingly, fluorescent labeling of unit specific markers regardless of size was known in the art at the time of filing. The claims require that a nucleic acid be bound by a labeled unit specific marker and that signal from such marker be detected following exposure to electromagnetic radiation. Such claims are enabled in view of the specification as a whole and the knowledge and state of the art at the time of the invention.

Other portions of the Examiner's rejection relate to prior claims in this application rather than the instant claims, and as result are not relevant (see, for example, page 9 of the instant office action, discussion of "detection of signal from less than all linked units in the polymer").

Reconsideration and withdrawal of this rejection is respectfully requested.

Rejection under 35 U.S.C. §102(b)

Claims 178 and 179 are rejected under 35 U.S.C. §102(b) as being anticipated by Rigler (J Biotechnol, 1995, 41: 177-186).

Rigler is a review article summarizing the various ways in which fluorescence correlation spectroscopy can be used. The Examiner concludes that Rigler provides all the limitations of claims 178 and 179. Applicant respectfully traverses.

Among other things, Rigler does not teach a method for detecting signals from a unit specific marker bound to a nucleic acid that is moved relative to electromagnetic radiation by a polymerase. The Examiner cites page 182, column 2 through to page 183, column 1 and Figure 7 as teaching this limitation. The cited text however refers to different ways in which nucleic acids may be labeled in order to be studied. Rigler states that "single virus molecules containing RNA or DNA sequences can be made visible by incorporating fluorescence markers in a specific way (and that) this can be achieved by hybridization of the vital DNA or RNA with several fluorescence

labeled primers in the form of a 'cocktail' or *by replication of the vital DNA/DNA with fluorescence labeled nucleotides and an unlabelled specific primer.* (emphasis added)." The plot provided in Figure 7 shows the autocorrelation function of single M13-DNA molecules, that have been labeled by incorporation of rhodamine dUTP with a specific 18mer primer and Klenow DNA polymerase, from single M13-DNA molecules. Rigler reports that a polymerase may be used to fluorescently label nucleic acids, which are then observed by fluorescence correlation spectroscopy. Rigler does not teach that the nucleic acids are attached to the polymerase during signal detection, and nor does it teach that the nucleic acid is moved relative to the electromagnetic radiation by the polymerase, as is recited in both claims 178 and 179.

Rigler does not provide all the limitations of the rejected claims, and therefore Rigler does not anticipate these claims. Reconsideration and withdrawal of this rejection is respectfully requested.

Rejection under 35 U.S.C. §103(a)

Claims 180 and 181 are rejected under 35 U.S.C. §103(a) as being unpatentable over Rigler as applied to claims 178 and 179 above, and further in view of Vurek et al. (U.S. Patent No. 5,119,463).

The teachings of Rigler are discussed above. At a minimum. Rigler does not teach a method in which a nucleic acid is moved relative to electromagnetic radiation by a polymerase. Vurek et al. does not cure this deficiency. Vurek et al. relates to probes to be used in veins and arteries in vivo to detect oxygen, carbon dioxide and/or pH. The reference does not discuss detection of signals from labeled nucleic acids, and it does not provide the limitation missing from Rigler. The combination of the references, even if proper, does not yield all the limitations of the rejected claims, and therefore it does not render obvious such claims.

Reconsideration and withdrawal of this rejection is respectfully requested.

CONCLUSION

A Notice of Allowance is respectfully requested. The Examiner is requested to call the undersigned at the telephone number listed below if this communication does not place the case in condition for allowance.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, the Director is hereby authorized to charge any deficiency or credit any overpayment in the fees filed, asserted to be filed or which should have been filed herewith to our Deposit Account No. 23/2825, under Docket No. C0989.70016US00 from which the undersigned is authorized to draw.

Dated: September 21, 2009

Respectfully submitted,

By _____

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